

CLAIMS

I claim:

1. A linear motion compensator comprising:

2 a housing defining a generally hollow interior, said housing being adapted
3 for operably connecting to an input device at a first end and to an output device
4 at a second end, and;

5 a stroke compensator generally contained within and movably supported
6 by said housing, said stroke compensator receiving a first particular length of
7 linear motion from said input device and transmitting to said output device a
8 second particular length of linear motion, wherein said first and second particular
9 lengths of linear motion are not equal.

1 2. The linear motion compensator of claim 1, wherein said stroke

2 compensator is at least one compensator cam having a pivot pin pivotably
3 supported by said housing.

1 3. The linear motion compensator of claim 2, wherein said stroke

2 compensator cam further includes an input round for receiving said first particular
3 length of linear motion from said input device and an output round for transmitting
4 said second particular length of linear motion to said output device.

1 4. The linear motion compensator of claim 3, wherein said pivot pin, said

2 input round and said output round define a triangular relationship.

1 5. The linear motion compensator of claim 4, wherein said triangular
2 relationship includes a first leg connecting said pivot pin and said input round, a
3 second leg connecting said pivot pin and said output round and a third leg
4 connecting said input round and said output round.

1 6. The linear motion compensator of claim 5, wherein a length for said first
2 leg of said triangle is selected from lengths that permit said input round to move
3 linearly said first particular length of linear motion without disengaging from an
4 operating shaft of said input device.

1 7. The linear motion compensator of claim 5, wherein a length for said
2 second leg of said triangle is selected from lengths that permit said output round
3 to move linearly said second particular length of linear motion without
4 disengaging from an operating shaft of said output device.

1 8. The linear motion compensator of claim 5, wherein a length for said
2 second leg of said triangle is selected from lengths that permit said output round
3 to move linearly said second particular length of linear motion without permitting
4 said third leg of said triangle to significantly approach 90° with respect to an
5 operating end of an operating shaft of said output device.

1 9. The linear motion compensator of claim 5, wherein a length for said
2 second leg of said triangle is selected from lengths that permit said output round
3 to move linearly said second particular length of linear motion without permitting

4 said third leg of said triangle to significantly approach 90° with respect to a flat
5 surface of an operating plate movably supported by said housing for linear
6 movement within said housing.

1 10. The linear motion compensator of claim 1, wherein said stroke
2 compensator includes:

3 a compensator screw defining an input end, an output end and a central
4 flange rotatably supported by said housing such that said compensator screw
5 can revolve about its axis but can not move linearly with said housing;
6 an input nut slidably retained in said housing such that only linear movement with
7 respect to said compensator screw is permitted; and,

8 an output nut, slidably retained in said housing such that only linear
9 movement with respect to said compensator screw is permitted.

1 11. The linear motion compensator of claim 10, wherein said input nut and
2 said input end of said compensator screw have threads configured to cause said
3 compensator screw to rotate about its axis a particular angle as said input nut is
4 linearly displaced along said input end of said compensator screw by said first
5 particular length of linear motion produced by said operator input device.

1 12. The linear motion compensator of claim 11, wherein said output nut and
2 said output end of said compensator screw have threads configured to cause
3 said output nut to be linearly displaced along said output end of said
4 compensator screw by said second particular length of linear motion, as said

5 compensator screw is rotated about its axis said particular angle..

1 13. A linear motion compensator comprising:

2 a housing defining a generally hollow interior, said housing being adapted
3 for operably connecting to an operator interface device at a first end and to an
4 electrical switching device at a second end, said operator interface device being
5 capable of producing a first particular length of linear movement and said
6 switching device requiring a second particular length linear movement for proper
7 operation, said first and second particular lengths of linear movement not being
8 equal, and;

9 a stroke compensator generally contained within and moveably supported
10 by said housing, said stroke compensator converting said first particular length of
11 linear movement to said second particular length of linear movement.

1 14. The linear motion compensator of claim 13, wherein said stroke
2 compensator is at least one compensator cam having a pivot pin pivotably
3 supported by said housing, an input round for receiving said first particular length
4 of linear movement from said operator interface device and an output round for
5 transmitting said second particular length of linear movement to said switching
6 device.

1 15. The linear motion compensator of claim 14, wherein a pivotal triangular
2 relationship between said pivot pin, said input round and said output round
3 translates said first particular length of linear movement received by said input

4 round from said operator interface device into said second particular length of
5 linear movement transmitted to said switching device by said output round.

1 16. The linear motion compensator of claim 13, wherein said stroke
2 compensator includes a compensator screw, an input nut and an output nut.

1 17. The linear motion compensator of claim 16, wherein said compensator
2 screw defines an input end, an output end and a central flange rotatably
3 supported by said housing such that said compensator screw can revolve about
4 its axis but can not move linearly with said housing.

1 18. The linear motion compensator of claim 17, wherein said input nut and
2 said output nut are slidably retained in said housing such that only linear
3 movement with respect to said compensator screw is permitted.

1 19. The linear motion compensator of claim 18, wherein said input nut and
2 said input end of said compensator screw have threads configured to cause said
3 compensator screw to rotate about its axis a particular angle as said input nut is
4 displaced by said first particular length of linear movement produced by said
5 operator interface device.

1 20. The linear motion compensator of claim 19, wherein said output nut and
2 said output end of said compensator screw have threads configured to cause
3 said output nut to be linearly displaced along said output end of said

4 compensator screw, by said second particular length of linear movement
5 required for proper operation of said switching device, as said compensator
6 screw is rotated about its axis said particular angle.